



ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

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Aviation Data Analysis Workshop (AVDATA)

ICAO Statistics Programme

Session 13

How to calculate yields and unit cost

How to calculate yields and unit cost

Yields and unit costs

The type of financial measurement which relates the total traffic applicable to the total operating revenues is called the operating **yield**. It is computed by dividing the total operating revenues by the tonne-kilometres performed.

The measurement which relates the capacity applicable to the operating expenses is called the **unit cost**, and it is usually computed by dividing the operating expenses by the tonne-kilometres available.

Where revenues and expenses are quoted in United States Dollars (USD), the operating yield is expressed in US cents per TKP and the unit cost in terms of US cents per ATK.



How to calculate yields and unit cost

Yields

Item	Formula
Passenger yield	passenger revenues/RPK
freight yield	freight revenues/FTK
Mail yield	mail revenues/MTK
Total yield	total revenues/RTK



How to calculate yields and unit cost

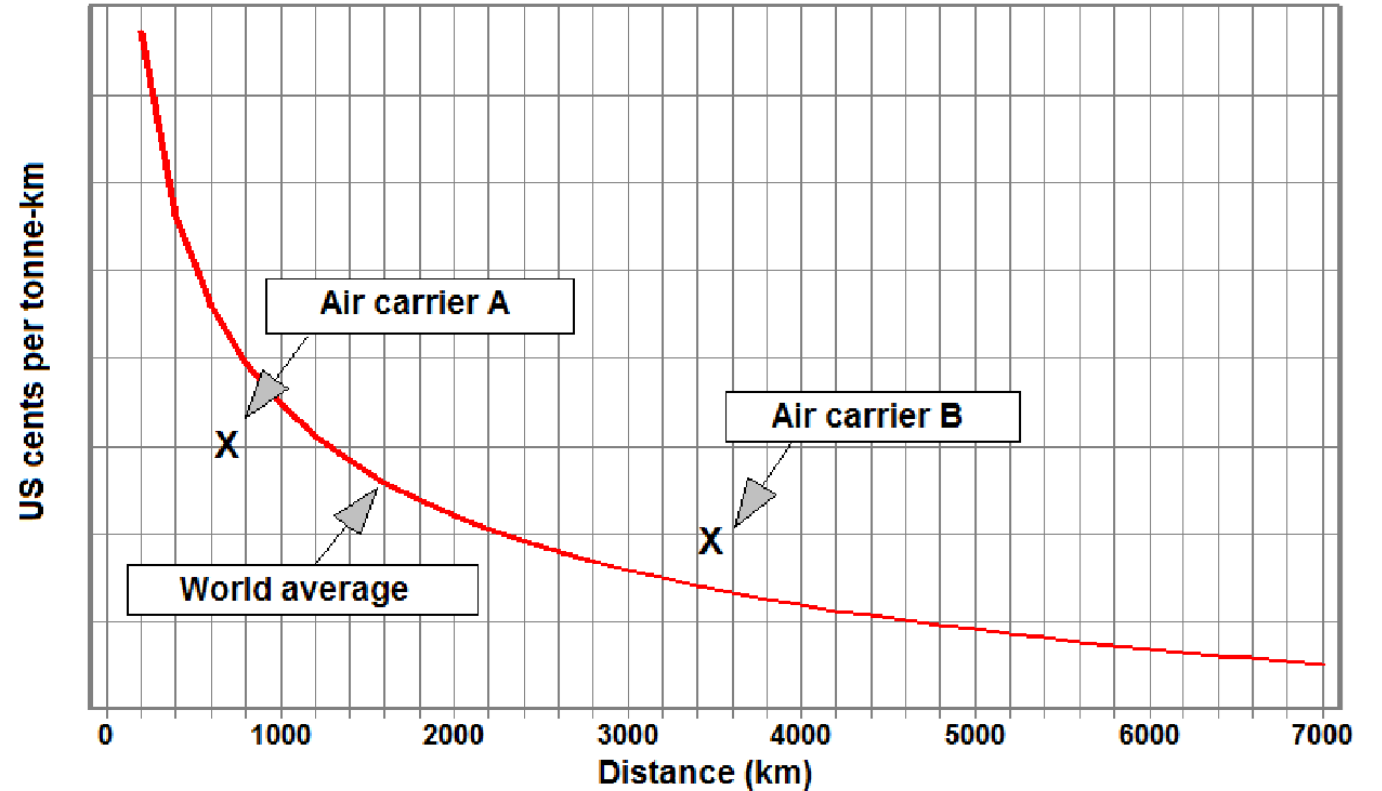
Unit costs

item	Formula
Total unit cost	Total operating costs/ATK Total operating costs/ASK
fuel unit cost	fuel cost/ATK fuel cost/ASK
flight operation unit cost	flight operation cost/ ATK flight operation cost/ ASK



Operating unit costs vs average flight stage distance flown

When comparing operating **yields** between routes or between air carriers, or **unit cost** between aircraft types operated by the same air carrier or different air carriers, one should always bear in mind how these values vary with distance flown.



How to calculate yields

KPIs	Scheduled flights
1. Scheduled services (total)	
1.1 Passenger	3,038,145
1.2 Excess baggage	52,395
1.3 Freight, express, and diplomatic bags	103,951
1.4 Mail	7,573

KPIs	Scheduled flights
1. Passenger-kilometres performed	29,964,110
2. Seat-kilometres available	39,735,732
3. Tonne-kilometres performed	
3.1 passenger (incl. baggage)	2,982,333
3.2 freight (incl. express)	348,281
3.3 mail	12,404
3.4 total	3,343,018
4. Tonne-kilometres available	5,175,520

Yield	Formula	Yield
Passenger yield	$3,038,145 + 52,395 / 29,964,110 * 100$	10.31
Freight yield	$103,951 / 348,281 * 100$	29.85
Mail yield	$7,573 / 12,404 * 100$	61.05

How to calculate unit cost

DESCRIPTION	AMOUNTS	
	Local currency	US dollars
Aircraft fuel and oil expenses	3,760,158	697,048
Other expenses	7,664,531	1,420,831
Landing and associated airport charges expenses	390,279	72,349
Air navigation charges expenses	340,118	63,050
Station expenses	422,887	78,394
Total operating expenses	13,992,895	2,593,967

KPIs	Scheduled flights
1. Passenger-kilometres performed	27,665,687
2. Seat-kilometres available	35,862,886
3. Tonne-kilometres performed	
3.1 passenger (incl. baggage)	2,314,028
3.2 freight (incl. express)	530,439
3.3 mail	5,750
3.4 total	2,850,156
4. Tonne-kilometres available	4,547,883

Unit cost	Formula	Unit cost
Aircraft fuel and oil expenses	$=(697,048 * 100) / 35,862,886$	1.94
Other expenses	$=(1,420,831 * 100) / 35,862,886$	3.96
Landing and associated airport charges expenses	$=72,349 * 100 / 35,862,886$	0.20
Air navigation charges expenses	$=(63,050 * 100) / 35,862,886$	0.17
Station expenses	$=(78,394 * 100) / 35,862,886$	0.21
Total operating expenses	$=(2,593,967 * 100) / 35,862,886$	7.23

How to calculate yields and unit cost

Exercise of calculation of yield and unit cost

Use EF form saved in exercise folder and fill in the following tables:

Yield	Formula	Yield
Passenger yield	$689,171.5/7,227,299$	9.54
Freight yield	$178,638.8/315,009$	56.71

Unit cost in terms of ASK	Formula	Yield
Aircraft fuel and oil expenses	$=(322,468.9*100)/14,568,447$	2.21
Landing and associated airport charges expenses	$=(36,670.2*100)/14,568,447$	0.73
Station expenses	$=(322,468.9*100)/14,568,447$	0.25
Total operating expenses	$=(1,357,814.2*100)/14,568,447$	9.32



Thank You

